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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,012	03/12/2001	William R. Bennett	SP-1080.2 US	8880

7590 03/28/2003

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EXAMINER

MERCADO, JULIAN A

ART UNIT	PAPER NUMBER
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1745

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DATE MAILED: 03/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

09/804,012

Applicant(s)

BENNETT ET AL.

Examiner

Julian A. Mercado

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) 7, 16 and 18 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

Claims 7, 16 and 18 are objected to because of the following informalities:

- a. In claim 7 at line 12, it is suggested to insert --the first-- before “cup corner radius”.
- b. In claim 16 at line 1, it is suggested to insert --first-- before “vertical height”.
- c. In claim 18 at line 12, it is suggested to insert cathode before “can height”.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 7 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a step along said side wall, does not reasonably provide enablement for “at least one step along said side wall” in line 7 of the claim. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. It appears to the examiner that applicant is claiming a left-side and right-side section of *the same step* as shown in the cross-sectional Figures. An additional step separate and distinct from this step does not appear to be enabled.

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The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitation "the cup corner radius" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

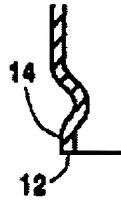
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5-9 and 11-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Bennett (U.S. Pat. 5,846,672).

Bennett teaches an anode cup [2] having an upper external diameter defined by peripheral wall [6] and a lower peripheral diameter defined by wall edge [14]. (col. 4 line 58-66) The cup has a closed upper end [4] and an open lower end [8]. (Figure 1, claim 2) A first and second vertical height joined to respective first and second points and having corresponding curved corner radii defining a step [10] is shown as follows: (from Figure 1)

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The edge portion [14] is also considered to read on the instant “substantially vertical portion”.

(claims 1, 2, 5 and 6,)

As to a ratio of the upper diameter to the lower diameter being greater than or equal to 0.86, it is reasonably presumed that Bennett teaches or at least suggests this feature as the bead [10] is specifically disclosed to curve *inwardly* resulting in the lower peripheral wall being indented in that same direction. In fact, the lower peripheral wall is indented to an extent equal to the sum thickness of gasket [20] and upstanding wall [34]. (col. 4 line 63-67) As a result, the upper peripheral wall would naturally flow to have a diameter greater than that of the lower peripheral wall and would result in a ratio greater than unity.

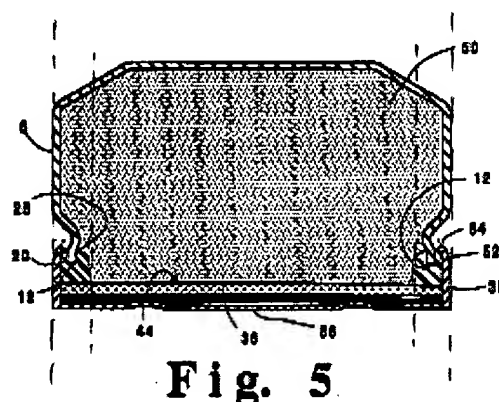
As to a ratio of cup height at the upper diameter to that of the lower diameter not being greater than about 2.19 (claim 1) or the difference between heights being greater than zero (claim 2 and 16), Bennett teaches that the step [10] is positioned at 5% to 40% of the wall height. Taking the indented area as the demarcation point in which the upper peripheral wall and the lower peripheral wall meet, in one respect the upper peripheral wall is at 60 % of the total wall height while the lower peripheral wall is at 40%. The resulting ratio of 1.5 is not greater than 2.19.

As to the ratio of total cup height to a vertical midpoint of the step, a total height of the cup to be at least two times the second vertical height and the first height to be at least two times

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the second vertical height, Bennett teaches the step to be positioned at 5% to 40% of the wall height, thus the resulting ratios of the first and second vertical heights of the wall fall within the range of 19 to 1.5. As the step is positioned between the first and second vertical heights, the ratio of the total height of the cup to a vertical midpoint of the step would be greater than three to the extent that the range of 19 to 1.5 overlaps and comfortably exceeds this range. (claims 6, 11 and 17) By the same reasoning as the highest position of the step is at 40% along the side wall, the first vertical height will *always* be greater than the second vertical height by a 60:40 up to as much as a 95:5 margin (claims 3, 9, 17) and naturally the difference between the first vertical height and the second vertical height will *always* be greater than zero. (claims 7-9 and 16)

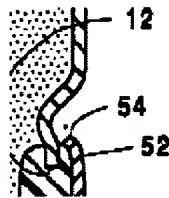
Claim 7 additionally requires an external diameter measured at a point where a cup corner radius blends into the cup side wall. The anode cup has its external diameter measured where the cup corner radius blends into side wall [6], resulting in the external diameter to be greater than that of an inner gasket diameter, as shown in Figure 5 and illustrated by phantom lines drawn by the examiner for clarification: (also applies to claims 12-15)



Gasket [20] which defines the inner gasket diameter as shown has a portion or “foot” disposed radially inward so as to project in that direction and form a groove [28]. (col. 5 line 52-57)

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As to claims 18-21, which recites the ratio of the total cell height to the cathode can height to be greater than 1.35, 1.5, 1.7, and 1.9, Figure 5 is considered to comfortably show this ratio while additionally, since the step is positioned at 5% to 40% of the wall height and rim [54] of the cathode can is inwardly compressed and below the step, the height of the cathode can is reasonably presumed to not exceed twice the height of the step (since the bottom edge [12] of the cup and rim edge [54] of the cathode can overlaps to some degree, see enhanced Figure 5).



Based on this reasoning the total cell height equals the anode cup height plus the cathode can height. Ergo, at 5% step height and since the cathode can is not more than this amount, the total height of the cell is 105%. The resulting ratio is 21. Even at 40% step height with the same calculations, the resulting ratio is 3.5.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 10 and 22-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett as applied to claims 1-3, 5-9 and 11-21 above, in view of Oltman et al. (U.S. Pat. 5,567,538).

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The teachings of Bennett are discussed above.

Bennett does not explicitly teach the total height of the cup to be at least 0.178 inch. However, Oltman teaches that metal-air cells typically have heights ranging from 2.1 mm to 15 mm. (col. 1 line 34) These heights correspond to 0.0827 to 0.590 inches. The skilled artisan would find obvious to employ a cup of a height at least 0.178 inches in Bennett's invention in accordance with the desire to maximize the amount of active material in the cell (as the cup contains the negative anodic material) as well as employ a cup size which is compatible with the electrically-powered devices the metal-air cell is designed for. (claims 4 and 10)

Regarding claims 22 and 23, while Bennett does not explicitly teach the cell to be a button-cell having a height not larger than the maximum outer diameter of the can, Oltman teaches that metal-air cells such as that also shown in Bennett are recognized in the art to be "button-cells", i.e. having a size of a garment button, along with having a height not larger than the cell's maximum outer diameter. (col. 1 line 24-40) Thus, the skilled artisan would find this terminology and dimensions for Bennett's metal-air cell to be known and obvious as demonstrated by Oltman and because both Bennett and Oltman's invention are drawn to alkaline electrochemical cells.

Regarding claims 24-28 which recite a total cell height minus a cathode can height being greater than or equal to about 0.04 inch, for similar reasons as discussed above for claims 18-21 pertaining to the total cell being equal to the anode cup height plus the cathode can height, taking Oltman's disclosed height of 0.0827 inches for a metal-air cell, the height of the cathode can to the total cell height when the step is at 5% is calculated as 0.0039, which when subtracted from the total cell height of 0.0827 equals 0.0788 (satisfying claims 24-26 for heights of 0.04, 0.06

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and "about 0.08" inch). As to the height greater than or equal to 0.10 inch or greater than about 1.35 inch, absent of unexpected results it is asserted that the total cell height, however it may be defined such as in applicant's recitation of a total cell height minus the cathode can height, is an optimizable parameter for a result-effective variable. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) The cell height is an optimizable parameter as it directly affects internal volume of the cell and the amount of active material that may be contained therein.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Pat. RE 31,413 is cited to teach metal-air cell diameters.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian A. Mercado whose telephone number is (703) 305-0511. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



jam

March 12, 2003



STEPHEN KALAFUT
PRIMARY EXAMINER
GROUP

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